

5 We claim:

1. A polymer composite building material, comprising a commingled, continuous filament of glass fibers and polymeric fibers as reinforcement, wherein the polymeric fiber that becomes the consolidation matrix is a fiberizable polymer selected from the group consisting of polyethylene, polypropylene and polyesters.

2. The polymer composite building material of claim 1, wherein the consolidation of the commingled fibers into composite reinforcement is made in-situ during in-line extrusion or pultrusion of the final end product.

3. The polymer composite building material of claim 1, wherein the consolidation of commingled fibers into composite reinforcement is prepared as a tape or rod, and incorporated into an off-line extrusion of the final product.

4. The polymer composite building material of claim 1, wherein the commingled, continuous filaments of glass fibers and polymeric fibers are incorporated through a cross-die head into a polymer extrudate.

5. The polymer composite building material of claim 1, wherein the commingled, continuous filaments contain glass fibers dispersed uniformly in a longitudinal direction during extrusion or pultrusion.

6. The polymer composite building material of claim 1, wherein the commingled, continuous filaments of glass fibers and polymeric fibers include from about 40% - 80% glass fiber content.

5           7.     The polymer composite building material of claim 1, wherein the commingled, continuous filaments of glass fibers and polymeric fibers further include carbon fibers and/or aramid fibers.

10           8.     The polymer composite building material of claim 1, wherein a bulk molding compound is made of the commingled, continuous filaments of glass fibers and polymeric fibers.

          9.     The polymer composite building material of claim 8, wherein the bulk molding compound made of the commingled, continuous filaments of glass fibers and polymeric fibers are compression molded into building products.

15           10.    The polymer composite building material of claim 9, wherein the building products are selected from the group consisting of fence, rail, post and deck materials.

20           11.    The polymer composite building material of claim 5, wherein the commingled, continuous filaments are added through a helical winding machine.

          12.    The polymer composite building material of claim 8, wherein the bulk molding compound includes from about 20%-80% glass fiber content, or is diluted with an addition of polymeric pellets to a glass fiber content to 10% or greater in the final product.

25           13.    The polymer composite building material of claim 8, wherein the thermal expansion and contraction is controlled by the use of the bulk molding compound.